Package 'LPR'

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Type Package

Title Lasso and Partial Ridge

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Imports glmnet,slam,parallel,foreach,iterators,doParallel,lattice,Matrix

Description Contains a function called ``LPR" to estimate coefficients using Lasso and Partial Ridge method and to calculate confidence intervals through bootstrap.

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NeedsCompilation no

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R topics documented:

LPR *Lasso and Partial Ridge*

Description

This package contains a function called "LPR" to estimate coefficients using "Lasso and Partial Ridge" method and to calculate confidence intervals through bootstrap.

Usage

```
LPR(x, y, lambda2, B, type.boot=c("residual","paired"), alpha = 0.05)
```

Arguments

x	explanatory variables
y	dependent variable
lambda2	tuning parameter for partial ridge, suggested value is $1/n$
B	the times of bootstrap
type.boot	the type of bootstrap, "paired" or "residual"
alpha	confidence level

Value

lambda.opt	chosen tuning parameter for LASSO
Beta	regression coefficients estimated by LASSO
Beta.LPR	regression coefficients estimated by LASSO and Partial Ridge(LPR)
selectset	coefficients set selected by LASSO
interval.LPR	confidence interval through bootstrap

Examples

```
#generate dataset
set.seed(2015)
n <- 100
p <- 250
B <- 100
s <- 10
rho <- 0.5
z <- matrix(rnorm(n*p),ncol=p)
x <- matrix(0,n,p)
x[,1] <- z[,1]
for(j in 2:p){
  x[,j] <- rho*x[,j-1]+sqrt(1-rho^2)*z[,j]
}

#beta is decaying
beta <- rep(0,p)
ind.s <- sample(1:p,s)
beta[ind.s] <- rnorm(s,1,sqrt(0.001))
for( j in setdiff(1:p,ind.s) ){
  beta[j]<-1/(j+3)^2
}
#generate y
epsilon <- rep(0,n)
epsilon <- rnorm(n,0,0.1)
y <- x%*%beta + epsilon
#use LPR
LPR.obj <- LPR(x, y, 1/n, B, type.boot="paired", alpha=0.05)
```

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